

1 1. A method of managing digital objects in a
2 network, each of the digital objects comprising a set of
3 sequences of digits and having an associated identifier
4 which is unique across the network, the method comprising
5 storing the digital objects at locations accessible
6 in the network using a storage technique which renders the
7 digital objects secure against unauthorized access,
8 storing pointer information which associates each
9 digital object identifier with a pointer indicating the
10 location of the stored digital object in the network, and
11 for each of the digital objects, storing, separately
12 from the digital object, validation information sufficient
13 to permit a determination whether a purported instance of a
14 digital object is identical to the original instance.

1 2. The method of claim 1 further comprising
2 permitting an authorized user to have access to the
3 validation information, using the digital object identifier,
4 to determine whether a purported instance of a digital
5 object is identical to the original instance.

1 3. The method of claim 1 wherein the validation
2 information comprises a digital signature over the digital
3 object.

1 4. A method of managing reference information about
2 digital objects in a network, each of the digital objects
3 comprising a set of sequences of digits and having an
4 associated identifier which is unique across the network,
5 the method comprising
6 storing the digital objects,
7 storing reference information for each of the
8 digital objects, and
9 storing validation information for each of the
10 digital objects which is substantially smaller in size than
11 the corresponding digital object and which enables a
12 determination of whether a purported instance of a digital
13 object is identical to the original instance.

1 5. The method of claim 4 further comprising
2 permitting authorized users to have access to the
3 reference information using the unique identifier.

1 6. The method of claim 4 wherein the reference
2 information comprises information concerning at least one of
3 the following: registration of rights in digital objects;
4 accesses to and uses of digital objects; the terms and
5 conditions for access and use of digital objects; the
6 ownership and licensing of rights to digital objects; links
7 between different digital objects.

1 7. A method of storing digital objects in a
2 network, each of the digital objects comprising a set of
3 sequences of digits, the method comprising
4 generating an identifier for each of the digital
5 objects which is unique across the network,
6 storing the digital objects in the network,
7 storing pointer information that associates each
8 identifier of a digital object with the location of the
9 digital object in the network,
10 generating verification information for each of the
11 digital objects, the verification information being
12 sufficient to determine whether a purported instance of the
13 digital object is identical to the original instance, and
14 storing the verification information separately from
15 the digital object.

1 8. The method of claim 7 wherein the pointer versus
2 identifier information is stored in multiple servers on the
3 network, and the identifiers are generated in a manner to
4 distribute the pointer versus unique identifier information
5 relatively evenly among the servers.

1 9. The method of claim 8 wherein the distribution
2 of pointer versus unique identifiers to the multiple servers
3 is based on a hashing algorithm.

1 10. A method for enabling users of a network to
2 access digital objects stored in the network, each of the
3 digital objects comprising a set of sequences of digits and
4 having an associated identifier which is unique across the
5 network, the method comprising
6 providing multiple pointer servers each of which
7 accepts identifiers of a subset of the digital objects and
8 returns corresponding pointers to the locations of the
9 digital objects in the network, and
10 providing a directory server which accepts
11 identifiers of any of the digital objects and returns the
12 locations of the pointer servers which accept those
13 identifiers.

1 11. A method of applying for registration of rights
2 in digital objects comprising
3 storing the digital objects in a network,
4 generating validation information for each of the
5 digital objects sufficient to determine whether a purported
6 instance of a digital object is identical to the original,
7 generating a unique identifier for each of the
8 digital objects,
9 associating with each of the unique identifiers a
10 pointer to the location of the digital object in the
11 network, and
12 submitting to a registering authority, an
13 application for registration of rights including the
14 validation information and the unique identifier.

1 12. A method of enabling holders of rights in
2 digital objects to control terms and conditions under which
3 they are accessed by users in a network, comprising
4 storing the digital objects in the network in a
5 manner that permits only authorized access,
6 storing, in the network, information about terms and
7 conditions for access to each digital object,
8 making the information about terms and conditions
9 available to a user in connection with a request for access
10 to a digital object,
11 enabling the user to indicate assent to the terms
12 and conditions, and
13 permitting access to the user only upon the user
14 indicating assent to the terms and conditions.

1 13. A method of enabling holders of rights in
2 digital objects to control terms under which rights in the
3 digital objects may be granted to others, comprising
4 storing, in the network, terms and conditions for
5 licensing rights,
6 providing information on terms and conditions
7 pertaining to works or other information or material that
8 the digital object may be based on or incorporate,
9 making the terms and conditions available to
10 potential rights holders and users, as appropriate, upon
11 request via the network,
12 enabling the potential rights holder and the current
13 rights holder to interact via the network to reach agreement
14 on terms and conditions for grant of rights,
15 storing, in a recordation server on the network,
16 information identifying grants of rights for digital objects
17 on the network.

1 14. A method to permit a user to comply with terms
2 and conditions of access to digital objects stored in a
3 network, each of the digital objects comprising a set of
4 sequences of digits and having an associated identifier
5 which is unique across the network, the method comprising
6 storing in the network information which associates
7 with each of the unique identifiers, a pointer to a rights
8 management system including a terms and conditions server
9 containing terms and conditions,
10 providing to the user in response to presentation of
11 a unique identifier the pointer to the terms and conditions
12 server,
13 providing to the user in response to presentation of
14 the pointer, terms and conditions information,
15 enabling the user to indicate assent to the terms
16 and conditions,
17 in response to the assent, permitting the user to
18 access the digital object including performance of the
19 object.

1 15. A method for maintaining a record of
2 information concerning digital objects stored on a network,
3 each of the digital objects comprising a set of digits and
4 having an associated identifier which is unique across the
5 network, the method comprising
6 storing the digital objects on the network in a
7 manner that restricts unauthorized access to and
8 transactions associated with the digital objects,
9 providing a reference service on the network,
10 separate from the storage of the digital objects, for
11 recording information about accesses to and transactions
12 associated with the digital objects,
13 recording in the reference service information about
14 accesses to and transactions associated with the digital
15 objects, and
16 permitting access to the records of the reference
17 service to authorized users.

1 16. A method for managing registration of claims to
2 rights in digital objects and any works or other information
3 or material that the object may be based on or incorporate,
4 comprising

5 storing, in a repository which is accessible on a
6 wide area network, copies of the digital objects, in a
7 manner that enables only authorized accesses to the digital
8 objects and permits verification that the stored digital
9 objects have not been subjected to unauthorized alteration,

10 at an information and reference server which is
11 accessible on the network at a different network address
12 from the repository, providing registration services
13 including receipt via the network of registration requests
14 and delivery via the network of registration certifications,
15 and

16 accessing, from the repository via the network, the
17 objects for use in providing the registration services.

1 17. The method of claim 16 further comprising
2 enabling owners of rights in digital objects to
3 deposit copies of the digital objects in the repository, via
4 the network.

1 18. The method of claim 17 further comprising
2 providing a service, accessible on the network, for
3 generating a unique handle for each digital object.

1 19. The method of claim 18 wherein
2 the handle for a digital object is unique both
3 across the network and over time.

1 20. The method of claim 18 further comprising
2 providing a service, accessible on the network, for
3 generating the handle and locating the pointer associated
4 with the handle for a digital object.

1 21. The method of claim 18 wherein the handle is
2 used to obtain a pointer to the network location of an
3 accessible copy of the digital object.

1 22. The method of claim 18 wherein the handle
2 comprises a pointer to the network location of information
3 concerning obtaining authorization to use the digital
4 object.

1 23. The method of claim 18 wherein the service is
2 provided at multiple different locations on the network.

1 24. The method of claim 20 wherein the service is
2 provided at multiple different locations on the network.

1 25. The method of claim 18 wherein the handles
2 comprise character strings associated with the servers which
3 generated them.

1 26. The method of claim 21 further comprising
2 providing a service, accessible on the network, for
3 providing the pointer in response to a handle.

1 27. The method of claim 26 wherein there are
2 multiple servers providing the service, each serving a
3 portion of the handle space.

1 28. The method of claim 18 wherein there are
2 multiple handle generation servers that may generate handles
3 independently.

1 29. The method of claim 16 further comprising
2 storing information concerning terms and conditions for
3 access to and use of the digital objects.

1 30. The method of claim 29 wherein information
2 concerning simple terms and conditions is stored in the
3 repository.

1 31. The method of claim 16 wherein additional
2 information concerning non-simple terms is held in a rights
3 management system.

1 32. The method of claim 18 wherein each of the
2 handles may be used to obtain one or more pointers to a
3 location or locations on the network where a copy of the
4 digital object to which the handle is assigned is
5 accessible.

1 33. The method of claim 32 wherein each of the
2 handles may be used to obtain one or more pointers to one or
3 more rights management system in which information
4 concerning non-simple terms is held and where rights
5 negotiation may be carried out.

1 34. The method of claim 18 wherein hash values are
2 computed on the handles and the hash values are distributed
3 among multiple handle servers, each handle server having a
4 table which associates handles with pointers.

1 35. The method of claim 16 further comprising
2 responding to requests, received via the network, for copies
3 of the stored digital objects.

1 36. The method of claim 35 further comprising
2 determining whether the requests for copies are authorized.

1 37. The method of claim 16 further comprising
2 providing multiple repositories.

1 38. A method for providing a repository for use in
2 network based regulation of claims in rights in digital
3 objects comprising
4 storing copies of the digital objects in a
5 repository accessible on the network, the copies being
6 stored in a secure manner that precludes other than
7 authorized access and that permits subsequent verification
8 that there have been no unauthorized changes to the objects,
9 providing handles for the digital objects, each
10 handle being unique across the network and over time, each
11 handle including information sufficient to locate a copy of
12 the digital object on the network, and
13 in connection with actions pertaining to regulation
14 of claims in rights in the digital objects, using the
15 handles to obtain authorized access to the digital objects.

1 39. The method of claim 38 wherein the actions
2 include registration of claims in the rights.

1 40. The method of claim 39 wherein the actions
2 include obtaining copies of the digital objects in exchange
3 for compensation.

1 41. A network-based method for managing
2 compensation for licensing of rights and other operations in
3 digital objects, comprising
4 storing, in a recordation system available to
5 authorized access on the network, information identifying
6 the ownership of rights in digital objects,
7 receiving, at a rights management system available
8 on the network, requests for rights in digital objects where
9 the terms and conditions have not been stipulated in the
10 properties record, and
11 in response to the requests for rights, issuing,
12 from the rights management system to the recordation system
13 via the network, requests to record information or transfers
14 of rights in and other information pertaining to the digital
15 objects and in works or other information or material on
16 which the object may be based or incorporate.

1 42. The method of claim 41 wherein the rights
2 comprise exclusive rights.

1 43. The method of claim 41 further comprising
2 recording the transfer of rights in the recordation system
3 in a manner which is secure against alteration.

1 44. The method of claim 41 wherein the request for
2 transfer of rights is associated with a commitment to
3 compensate the owner of the rights.

1 45. A method for compensating owners of rights in
2 digital objects stored in a network for access to the
3 digital objects by users via the network, comprising
4 storing on the network information associated with
5 the digital objects and identifying the terms and conditions
6 on which a user may have access to the digital objects via
7 the network,
8 in connection with a request by a user for access to
9 a digital object, fetching and providing to the user the
10 terms and conditions, and
11 construing an action taken by the user in connection
12 with requesting access to the digital object as agreement
13 with the terms, and charging the user accordingly.

1 46. A method for managing handles for digital
2 objects in a computer network comprising
3 including in the handle an indication of a local
4 naming authority having control over generation of a subset
5 of all global generated handles, and
6 including in the handle a string which is locally
7 unique with respect to digital objects for which generation
8 of handles are controlled by the local naming authority.

1 47. A method for managing generation of handles for
2 digital objects in a computer network comprising
3 maintaining local naming authorities that control
4 generation of handles for digital objects, the handles being
5 a subset of all of the handles generated globally, and
6 maintaining a global naming mechanism that assures
7 unique naming of the local naming authorities.

1 48. A method for managing handles for digital
2 objects in a computer network comprising
3 managing some of the handles to be globally publicly
4 accessible, and
5 managing some of the handles to be only locally and
6 privately accessible.

1 49. A method of managing access to digital objects
2 in repositories comprising
3 managing deposit of a digital object by accepting
4 and storing the digital object and arranging for the
5 generation and storage of an associated handle for the
6 object, and
7 managing access to the digital object by a accepting
8 and receiving a service request which includes a handle.

1 50. A system of managing digital objects in a
2 network comprising
3 a system of repositories which accept, store, and
4 make disseminations of digital objects and portions of
5 digital objects in response to requests received from any
6 arbitrary location in the network,
7 a system of handle servers which provide services in
8 connection with handles for digital objects stored in the
9 repositories, and
10 a system of naming authorities which controls
11 generation of handles on a global and local basis to assure
12 locally unique and globally unique handles for digital
13 objects.